REMARKS

STATUS OF THE CLAIMS

Claims 1-20 are pending in the application.

Claims 1-5, 9-14, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Chandler et al. (U.S. Patent No. 5,296,690).

Claims 6-8 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Independent claims 1, 10 and 19 are amended, and, thus, claims 1-20 remain pending for reconsideration, which is respectfully requested.

No new matter has been added in this Amendment.

CLAIM REJECTIONS

Chandler discloses omnidirectional reading of bar code symbols. Chandler discloses capturing and storing a two dimensional image that includes a bar code symbol somewhere within the field of view. Chandler discloses processing the stored image for detecting a potential location or locations, anywhere within the field of view of the stored image, each of which locations being likely to contain a bar code symbol (column 2, line 51 to column 3, line 3). The Office Action appears to be relying on Chandler's description, "detecting a potential location or ***locations*** ... ***each of which locations being likely to contain a bar code symbol***" (column 2, lines 51-59), to reject the claimed present invention's two-dimensional code extraction from an input image data as recited in independent claims 1, 10 and 19.

In particular, the Office Action relies on Chandler, column 7, lines 53-63, which describes a bar code location algorithm. Chandler divides the image area 48 into cells 49 in each of four directions of vertical, horizontal, falling diagonal, and rising diagonal, as shown in FIG. 3 (column 6, lines 24-25). Chandler performs the bar code location algorithm for all cells 49 in image area 48 (FIG. 3A) in all of the four directions of vertical, horizontal, falling diagonal, and rising diagonal, to create a cell activity score map for each direction (column 7, line 45 to column 8,

line 8 and FIG. 5A). Although, FIG. 5B, operation 96, provides, "lookup next region of bar code activity," this description fails to disclose or suggest that Chandler can process ***multiple regions of bar code activity*** or fails to disclose or suggest the claimed present invention's "detecting ***one or more two-dimensional code regions ... each*** two-dimensional code region ***comprising a number of neighboring and contiguous blocks from among said detected blocks***," and where each two-dimensional code region ***corresponds to respective one or more two-dimensional codes***. This is because Chandler, column 9, lines 19-34, provides that Chandler is targeting ***partial bar code scan regions*** that include cells 49 of the image area 48, representing an adjacent image area of interest, such that, "Once all of the stored regions containing bar code activity have been scanned, the partial scans are concatenated, or connected to form a complete scan at step 98."

Therefore, in Chandler's FIG. 5B, at step 98, the partial scans are concatenated and output to a scan decoder. Therefore, Chandler's description, "detecting a potential location or locations ... each of which locations being likely to contain a bar code symbol" (column 2, lines 51-59), refers to detecting ***a single bar code symbol 58 based upon multiple cells 49*** (52) (FIG. 3A) that correspond to multiple portions of the single bar code symbol 58 (see, column 6, lines 35-39). Also, Chandler, in column 8, lines 25-28, clearly discloses determining one region of interest. Therefore, contrary to the Office Action suggestion, Chandler's cells 49, as a location or locations that contain a bar code symbol, differs from the claimed present invention's, "detecting ***one or more two-dimensional code regions ... each*** two-dimensional code region ***comprising a number of neighboring and contiguous blocks from among said detected blocks***," and where each two-dimensional code region ***corresponds to respective one or more two-dimensional codes***.

To clarify the patentably distinguishing features of the present invention, the independent claims 1, 10 and 19, using claim 1 as an example, are amended as follows:

> 1. (CURRENTLY AMENDED) A two-dimensional code extraction method comprising:
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> inputting image data;
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> scanning said input image data in a square block unit of MXN pixels (M and N are positive integers);
>
> detecting blocks that satisfy specific conditions from said scanned blocks;
>
> detecting ***one or more two-dimensional code regions corresponding to respective one or more two-dimensional codes***, each two-dimensional code region comprising a number of neighboring and continuous blocks from among said detected blocks that satisfy specific conditions from said scanned blocks; and
>
> extracting the one or more two dimensional codes from among the detected two-dimensional code regions ***that have more than a predetermined number of the neighboring and continuous blocks*** (emphasis added).

Therefore, although Chandler discusses bar code location algorithm in FIGS. 1, 5A and 5B, in contrast to Chandler, the claimed present invention provides, "detecting ***one or more two-dimensional code regions corresponding to respective one or more two-dimensional codes***" and "***each two-dimensional code region*** comprising ***a number of neighboring and continuous blocks from among said detected blocks that satisfy specific conditions from said scanned blocks***." Therefore, in contrast to Chandler, the claimed present invention provides, "extracting the one or more two dimensional codes from among the detected two-dimensional code regions ***that have more than a predetermined number of the neighboring and continuous blocks***" (e.g., amended claim 1). In other words, it would not be obvious to one skilled in the art to modify Chandler to extract multiple two dimensional codes from an image by determining multiple regions of detected neighboring and continuous blocks and ***extracting multiple two dimensional codes that have more than a predetermined number of the neighboring and continuous blocks***, because Chandler does not contemplate "detecting ***one or more two-dimensional code regions corresponding to respective one or more two-dimensional codes, each*** two-dimensional code region ***comprising a number of neighboring and contiguous blocks from among said detected blocks that satisfy specific conditions from said scanned blocks***" (e.g., amended claim 1). Support for the

claim amendments can be found, for example, in paragraphs 58 and 69-90 and FIGS. 4-8, of the present Application. For example, paragraph 90 and FIG. 8 show detection of multiple regions of multiple two-dimensional codes.

Chandler also discusses determination of a location or locations likely to contain a bar code symbol by computing a location score for a particular cell 49 by approximating derivatives of scan lines for a given cell 49 and accumulating the sum of the products of derivatives of the scan lines (column 6, lines 40-66). Chandler in column 7, line 54 to column 8, lines 8, discloses that the complete set of scores for a given direction, forms a map of likely regions of bar code activity and examining all location scores that exceed a give threshold to determine bar code activity. Even if location scores that are high, as a condition for bar code activity, might be neighboring and continuous, however, Chandler uses a region growing technique to locate a region of bar code activity from the computed location scores (column 8, lines 9-23). In contrast to Chandler, the claimed present invention provides, "detecting ... ***each two-dimensional code region*** comprising ***a number of neighboring and continuous blocks from among said detected blocks that satisfy specific conditions from said scanned blocks***" and "extracting the one or more two dimensional codes from among the detected two-dimensional code regions ***that have more than a predetermined number of the neighboring and continuous blocks***" (e.g., amended claim 1).

In view of the claim amendments and remarks, withdrawal of the rejection of pending claims and allowance of pending claims is respectfully requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,
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